

A GUIDE TO IDENTIFY OR AUTHENTICATE PLANT SPECIMENS AT CENTRAL NATIONAL HERBARIUM

The Central National Herbarium (CNH) and the BSI EIACP PC-RP Centre at Howrah, regularly receive queries from persons outside the Botanical Survey of India (BSI) for identification / authentication of plant specimens from CNH, Howrah.

It is advisable that before bringing / sending the plant specimens for the purpose of identification / authentication in CNH one may collect, process and mount the plant specimens according to the procedure mentioned below:

- ❖ Collections should be made from healthy plants.
- ❖ In case of small herbaceous plants, the entire plant with roots should be collected but in case of a shrub or a tree, a twig of suitable size should be cut in such a way so that it can be accommodated properly on approximately 41.5 × 28 cm mounting sheet. **The specimen should be with flowers / fruits or both because without flowers / fruits, a plant cannot be correctly identified.** The collected specimen has to be placed within several layers of drying papers such as blotting papers or newspapers and the bundle has to be kept within a drying press (approx. A3 paper size) fastened with straps. If a drying press is not available pressure can be applied by placing heavy books like encyclopedias, telephone directories, etc. on the bundle. The blotting papers or newspapers have to be frequently changed, especially when the plant specimen is fleshy or during the rainy season, till the specimen is completely dried. At the time of collection, a small paper tag bearing a collection number should be attached to the specimen with thread and the field note should be recorded in a fieldbook against that number. This will help in preventing the mixing of recorded field data of different collections and in referring to a particular collection during future studies.
- ❖ While pressing a plant specimen the following things should be kept in mind.
 - Leaves should not be folded
 - One leaf should not overlap the other leaf
 - The leaf should not cover the flowers or fruits
 - A leaf and a flower should be reversed for easy study of their undersurface
- ❖ Then the specimen should be poisoned by dipping it in a saturated solution of mercuric chloride ethyl alcohol or formaldehyde and ethyl alcohol. During the process

of poisoning, rubber /plastic gloves, brush, forceps and nasal mask should be used because **mercuric chloride is highly poisonous and corrosive**. The hands should be thoroughly washed after poisoning and even after handling the poisoned specimens.

- ❖ The specimen has to be completely dried again. It is then fixed on a mounting sheet with the help of the common glue (prepared mainly from 'sirish') available in the market as flakes or a good adhesive (fevicol). Thick parts of the specimen may be stitched onto the sheet using a good thread. The glue is prepared after boiling the flakes in water till a thick sticky liquid is produced. Sometimes fevicol diluted with water is also used. These adhesives are applied on the lower side of the specimen with the help of a brush. The specimen is to be carefully placed on the sheet keeping adequate space at the lower right hand corner of the sheet where the herbarium label is usually pasted. The specimen has again to be kept under adequate pressure for a couple of days or so. It would then firmly attach to the sheet. In case of small herbaceous plants, more than one specimen can be mounted on the same sheet.
- ❖ The herbarium label (approx. 11.5 × 10 cm) should contain the following details viz., field number, locality of collection, date of collection, distribution, common / local name(s), flower colour, habit (i.e. herb, shrub, tree or climber), habitat, or any other relevant field data / observations, etc. All available data should be recorded therein.
- ❖ The mounted specimen with the aforementioned recorded data is now ready for identification or authentication of the stated identity.

For more detailed information on herbarium procedures, one can go through the following books:

- Bridson, D. & L. Forman. eds. 1998. The Herbarium Handbook. 3rd ed. Royal Botanic Gardens, Kew (Reprinted 1999).
- De Vogel, E.F. 1987. Manual of Herbarium Taxonomy: Theory and Practice. UNESCO, Jakarta.
- Fosberg, F.R. & M.-H. Sachet. 1965. Manual for tropical herbaria. Int. Bur. Pl. Tax. & Nom., Regnum Vegetabile Vol. 39. Utrecht.
- Jain, S.K. & R.R. Rao. 1977. A handbook of field and herbarium methods. Today & Tomorrow's Printers and Publishers, New Delhi.
- Victor, J.E., M. Koekemoer, L. Fish, S.J. Smithies, M. Mossmer. 2004. Herbarium essentials: the Southern African Herbarium user manual. Southern African Botanical Diversity Network Report No. 25. SABONET, Pretoria.

It would be worth mentioning here that the herbarium is a place where the mounted specimens are kept and arranged according to a particular system of classification and the specimens deposited in the herbarium are referred to as 'herbarium specimens'.

All herbaria are regularly sanitized to prevent fungal infections and insect pests.

In CNH one can identify their plant specimens themselves or with the help of the staff-members of CNH after seeking permission from the Scientist, In-Charge, CNH, BSI. For this, no fees would be charged. All specimens brought from outside are to be re-poisoned / kept in the deep freezer for 72 hours before they can be taken inside the herbarium. This is done to prevent fungus and pests that come with the outside specimens and affect the herbarium specimens.

If they need a certificate from the Scientist-in-Charge, CNH regarding identification / authentication of plant specimens, then they can either bring here their specimens on their own or send them by post. In either case, a reasonable time has to be given for the process of identification / authentication. For each specimen / sample, a charge of Rs. **250/-** applies to UG and PG students. A charge of Rs. **500/-** will have to be paid for each specimen by the person from NGOs, Commercial Organizations, scientists, research scholars, etc. Payment in cash is acceptable only if they pay personally while receiving the herbarium specimens and certificate. Otherwise, they should send the required charges **by demand draft payable to "Accounts Officer, P.A.O. (BSI/ZSI), Kolkata"** or via **bharatkosh.gov.in** only after receiving intimation from the Scientist, In-Charge, CNH about the exact amount of money to be paid. If payment is made by demand draft, the herbarium specimens will be retained and the certificate will be sent by post to their stated address.

However, if the persons want to have their specimens back, then they will have to collect the specimens by hand.

The postal address for sending the specimens, along with other contact numbers and email ID are given as follows:

Scientist-in-Charge, Central National Herbarium, Botanical Survey of India, P. O.

Botanic Garden, Howrah 711 103, West Bengal.

Phone: (033) 26683235

Adequate measures should, however, be taken while packing the specimens because they often break during the process of transit. Specimens that have not been properly processed will be destroyed.

The information given, so far, is applicable only for Angiosperms. Other plant specimens belonging to Gymnosperms, Pteridophytes, Fungi, Algae, etc. may also be identified / authenticated subject to the availability of experts working in these plant groups.

It is advisable that collections from Bihar, Jharkhand and West Bengal are to be sent to CNH, but specimens collected from other regions should be sent for identification/ authentication at first to the respective Regional Centres of BSI from whose territorial jurisdiction the plants have been collected.

The postal addresses, contact numbers and email IDs of the Regional Centres are given as follows:

Scientist, In-Charge, Botanical Survey of India, Andaman & Nicobar Regional Centre,
P.O. No.: 692, Haddo, Port Blair 744 102, South Andaman.
Phone: (03192) 233224
Territorial jurisdiction: Andaman & Nicobar Islands.

Scientist, In-Charge, Botanical Survey of India, Arid Zone Regional Centre, near Khema
KaKuan, Pal-Basni Canal Link Road, P.O.: Nandan Van, Jodhpur 342 008, Rajasthan.
Phone: (0291) 2740415
Territorial jurisdiction: Rajasthan, Gujarat.

Scientist, In-Charge, Botanical Survey of India, Arunachal Pradesh Regional Centre, Post
Box No. 127, Sankie View, Itanagar 791 111, Arunachal Pradesh.
Phone: (0360) 2212405
Territorial jurisdiction: Arunachal Pradesh.

Scientist, In-Charge, Botanical Survey of India, Central Regional Centre, 10 - Chatham Lines, Near Prayag Railway Station, Allahabad 211 002, Uttar Pradesh.

Phone: (0532) 2441192

Territorial jurisdiction: Madhya Pradesh, Chhattisgarh and Uttar Pradesh.

Scientist, In-Charge, Botanical Survey of India, Deccan Regional Centre, ZSI Campus, Plot No. 366/1, Village – Attapur, Near Office of DFO Flying Squad, Inner Ring Road, P.O. Hyderguda, Hyderabad- 500 048, Andhra Pradesh.

Phone (040) 2002 0666

Territorial jurisdiction: Andhra Pradesh and Orissa.

Scientist, In-Charge, Botanical Survey of India, Eastern Regional Centre, Woodland Campus, Lower New Colony, Laitumkhrach, Shillong 793 003, Meghalaya.

Phone: (0364) 2223971

Territorial jurisdiction: Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura.

Scientist, In-Charge, Botanical Survey of India, Northern Regional Centre, 192 - Kaulagarh Road, Dehradun 248 195, Uttarakhand.

Phone: (0135) 2753433 / 2755478

Territorial jurisdiction: Himachal Pradesh, Uttarakhand, Jammu & Kashmir, Punjab, Haryana, Chandigarh and Delhi.

Scientist, In-Charge, Botanical Survey of India, Sikkim Himalayan Regional Centre, Below Rajbhawan Campus, P.O. Rajbhawan, Gangtok 737103, Sikkim.

Phone: (03592) 202789

Territorial jurisdiction: Sikkim.

Scientist, In-Charge, Botanical Survey of India, Southern Regional Centre, T.A.N.U. Campus, Lawley Road, Coimbatore 641 003, Tamil Nadu.

Phone: (0422) 2432123, 2432788

Territorial jurisdiction: Kerala, Tamil Nadu, Pondicherry and Lakshadweep.

Scientist, In-Charge, Botanical Survey of India, Western Regional Centre, 7 - Koregaon Road, Pune 411 001, Maharashtra.

Phone: (020) 29707078

Territorial jurisdiction: Maharashtra, Goa, Karnataka, Dadra, Nagar Haveli & Daman
Diu.

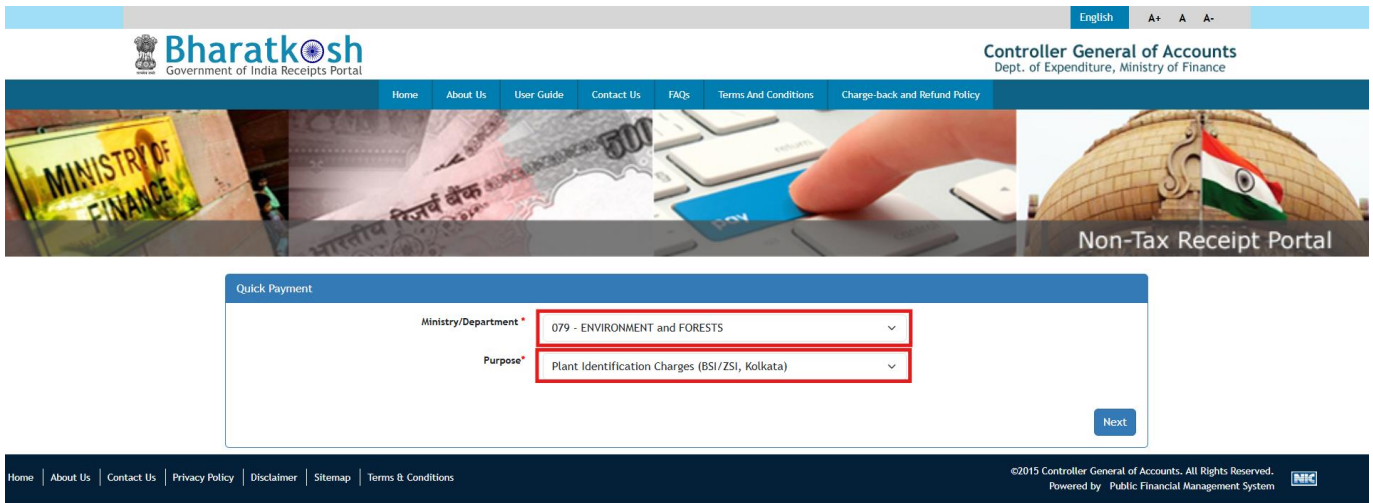
In case identification / authentication can't be done in these Regional Centres, then definitely one has to contact CNH.

It should be mentioned here that the aforementioned procedures will not only help to ensure quick and proper identification / authentication of plants but will also help to preserve them for future studies, if required.

The images of four herbarium sheets with flowers / fruits are finally provided to show how properly pressed plant specimens look like.



For online payment of plant identification charges via bharatkosh.gov.in following information is required to be filled by an individual.



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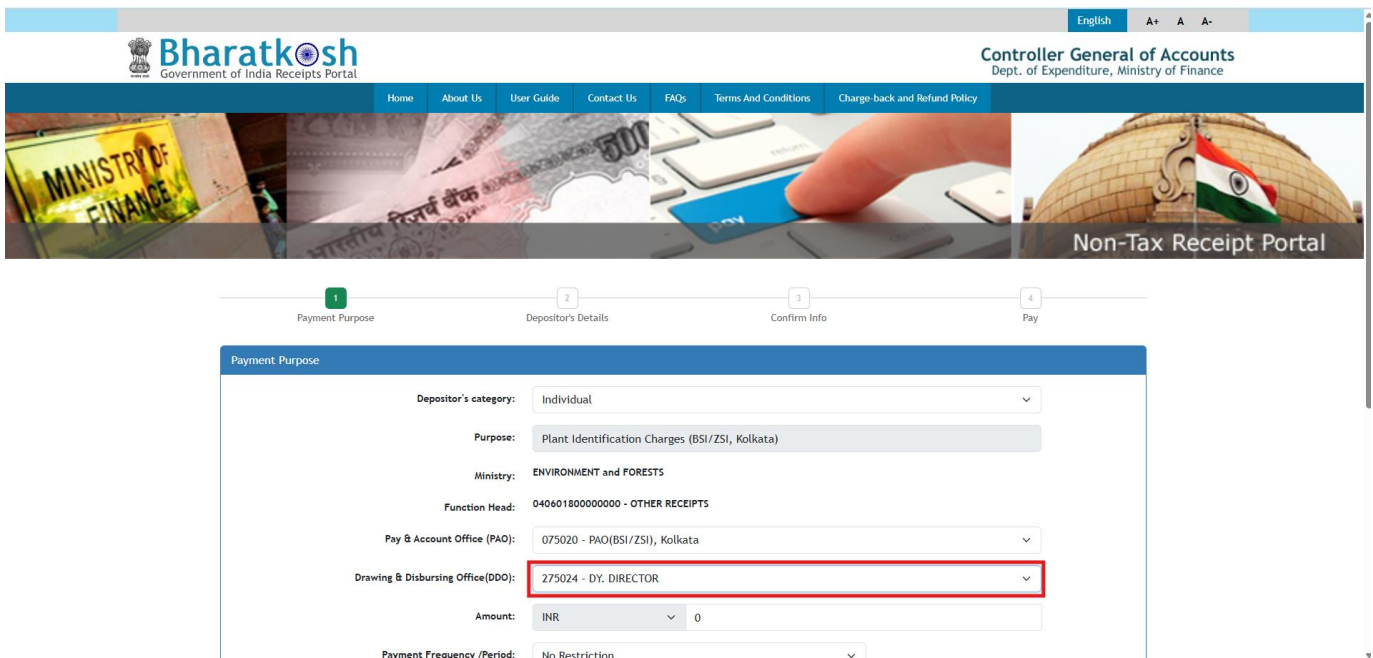
Ministry/Department * 079 - ENVIRONMENT and FORESTS

Purpose * Plant Identification Charges (BSI/ZSI, Kolkata)

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Payment Purpose

Depositor's category: Individual

Purpose: Plant Identification Charges (BSI/ZSI, Kolkata)

Ministry: ENVIRONMENT and FORESTS

Function Head: 04060180000000 - OTHER RECEIPTS

Pay & Account Office (PAO): 075020 - PAO(BSI/ZSI), Kolkata

Drawing & Disbursing Office(DDO): 275024 - DY. DIRECTOR

Amount: INR 0

Payment Frequency /Period: No Restriction

Data provided by
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